

SIEMENS

MAMMOMAT 300

SP

System

Service Instructions

Collimator

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Information on legal regulations

Depending on local regulations, a partial acceptance test may be required with regard to the position of the radiation field as well as the coincidence of light and radiation fields. The test results should be documented in the corresponding test log.

Information for systems with rhodium filters

For service work on systems containing rhodium filters, additional information is available in the Service Instructions for Rhodium Filters, Print no.: RXB7-120 061.02.01...

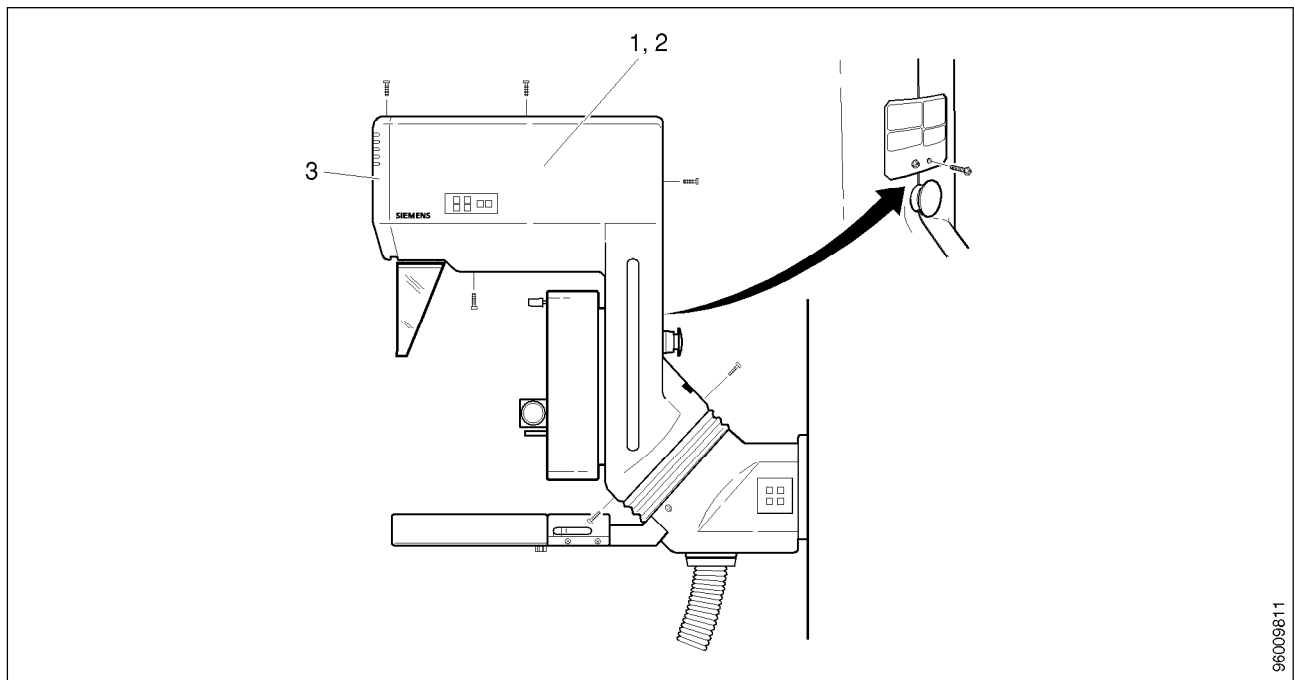


Fig. 1

Preliminary steps

Removing the swivel arm covers

- Switch the system OFF.
- Remove the X-ray tube covers by removing the screws:

front (3/Fig. 1)

left and right sides(1, 2/Fig. 1)

- Switch the system ON.
- Move the swivel head to the -180° position.
(facilitates the following steps)
- Switch the system OFF.

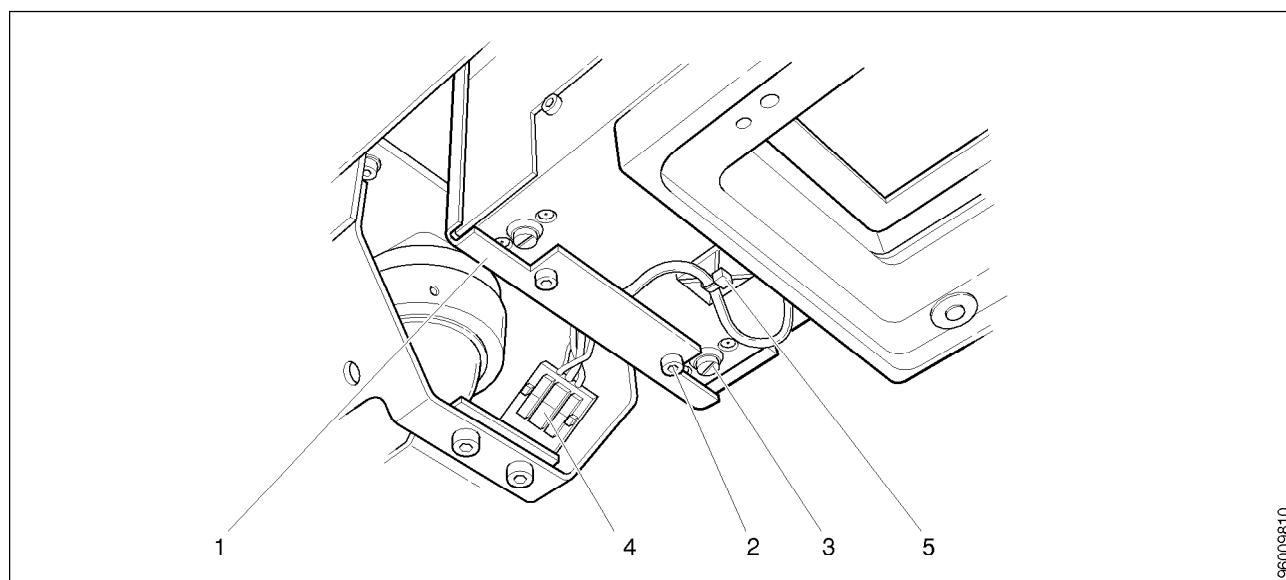


Fig. 2

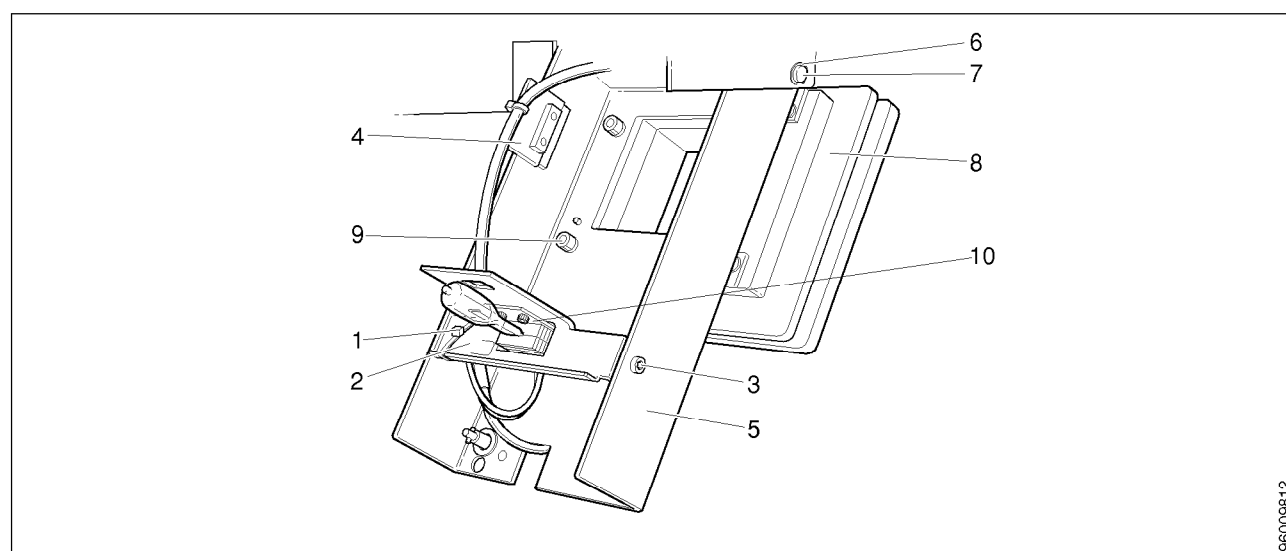


Fig. 3

Removing the collimator

- Remove the Allen screws (2/Fig. 2); remove the back plate (1/Fig. 2).
- Loosen the slotted screws (3/Fig. 2) by one-quarter turn.
- Rotate the collimator (5/Fig.3) downward.

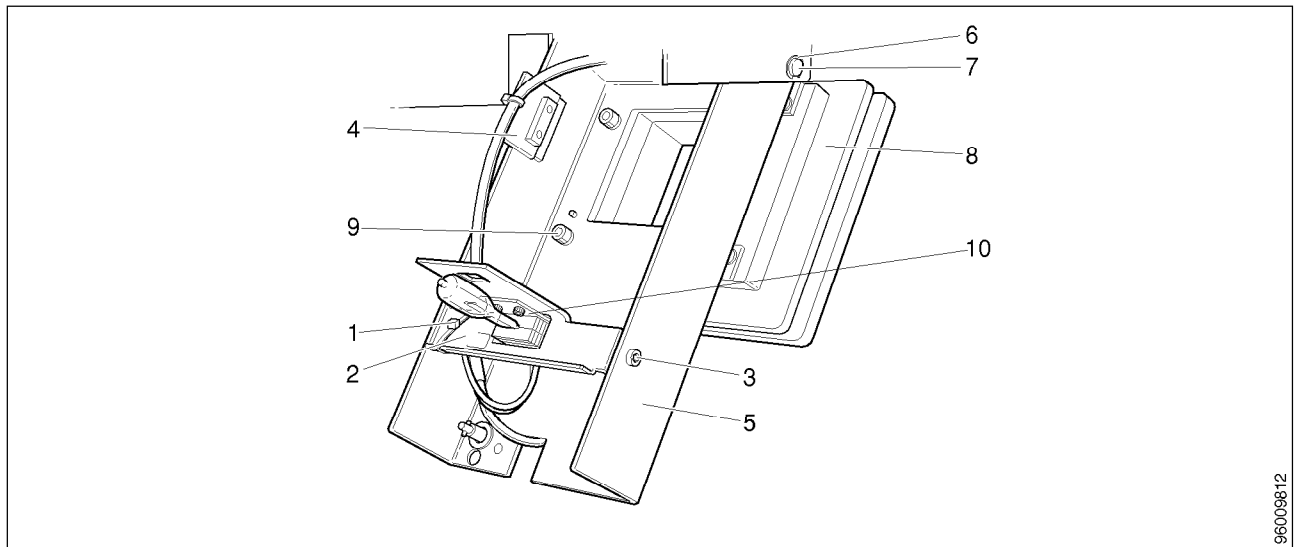


Fig. 1

Replacing the object illumination lamp

- Remove the swivel head cover as described in chapter 1.
- Lower the collimator as described in chapter 1.
- Replace the lamp (1/Fig.1).

CAUTION

**Do not touch the lamp with your fingers.
Wear gloves or use a soft cloth when replacing the lamp.**

- Move the collimator back into place.
- Check the coincidence of light and radiation fields, as described in chapter 3.
- Reinstall all covers.

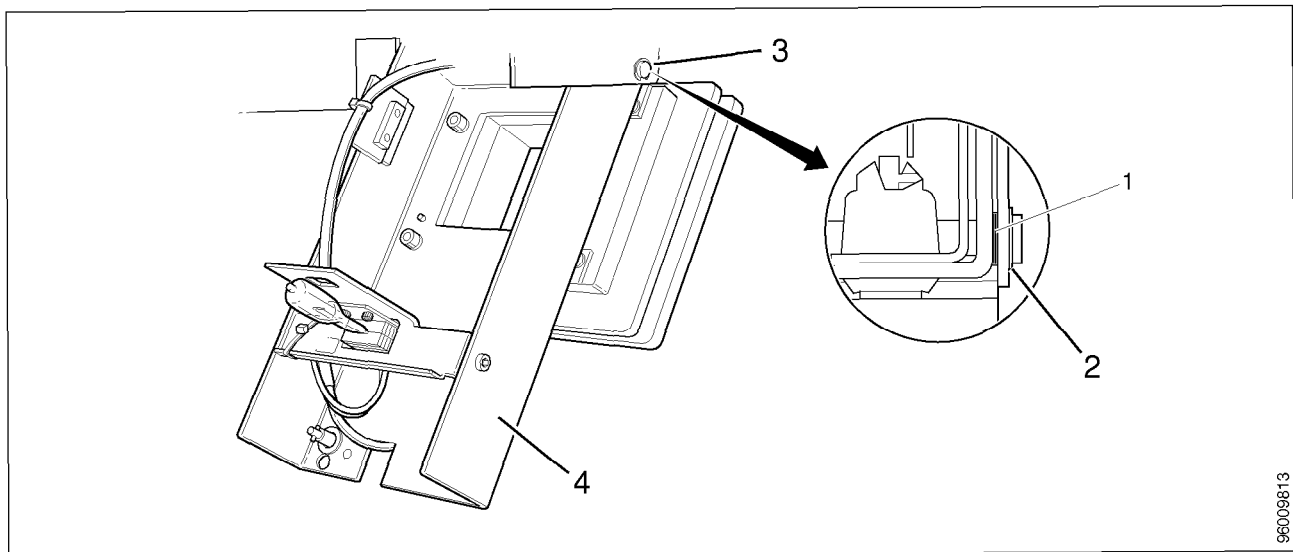


Fig. 2

Replacing the mirror

- Remove the X-ray tube covers and lower the collimator as described in chapter 1.
- Remove (5/Fig.2, chap. 1) the cable ties and disconnect plug X894 (4/Fig.2).
- Remove the circlip (2/Fig. 2).
- Pull out the shaft (3/Fig. 2).
- Remove the collimator support (4/Fig. 2)

NOTICE

Note the number of spacers (1/Fig. 2) removed, as they must be reinstalled later on.

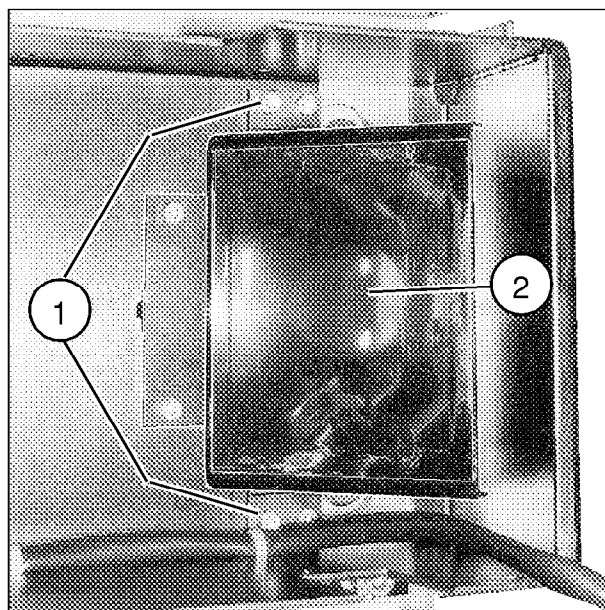


Fig. 3

- Remove the 4 screws (1/Fig. 2).
- Remove the (2/Fig. 2) mirror.
- Carefully install the new mirror and tighten the screws.

CAUTION

Handle the mirror carefully to avoid damaging it.

- Reinstall the shaft and circlips in the collimator.
- Reinstall the collimator.
- Check the coincidence of light and radiation fields as described in chapter 3.
- Reinstall all covers.

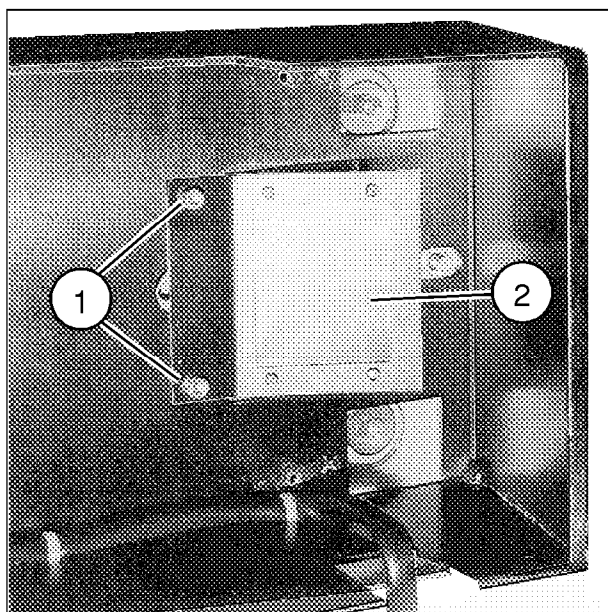


Fig. 4

Replacing the filter

- Remove the X-ray tube covers as described in chapter 1.
- Remove the mirror as previously described.

CAUTION

Handle the mirror carefully to avoid damaging it.

- Remove the 2 screws (1/Fig.4).
- Remove the filter (2/Fig. 4).
- Install the new filter and secure it with the screws.

CAUTION

Handle the new filter carefully to avoid damaging it. Hold the filter unit by the edge only - never touch the filter.

- Install the mirror and secure it with the screws.
- Reinstall the collimator.
- Check the coincidence of light and radiation fields as described in chapter 3.
- Reinstall all covers.

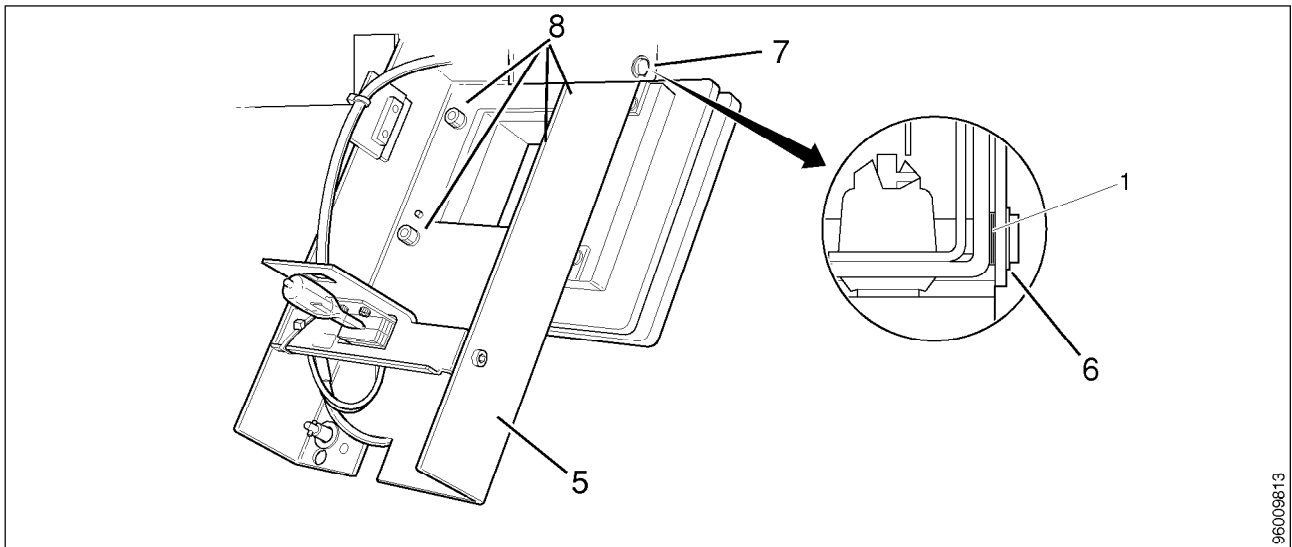


Fig. 5

Replacing the microswitch

- Remove the X-ray tube cover as described in chapter 1.
- Lower the collimator as described in chapter 1.
- Cut off the cable ties (5/Fig. 2, chap. 1).
- Disconnect plug X894 (4/Fig. 2, chap. 1).
- Remove the circlip (6/Fig. 5).
- Pull out the shaft (7/Fig. 5).
- Remove the collimator support (5/Fig. 5).
- Remove the 4 screws (8/Fig. 5).
- Remove the frame.
- Remove the switch by removing the screws and replace it.
- Reinstall the collimator support.
- Reinstall the collimator.
- Check the coincidence of light and radiation fields as described in chapter 3.
- Reinstall all covers.

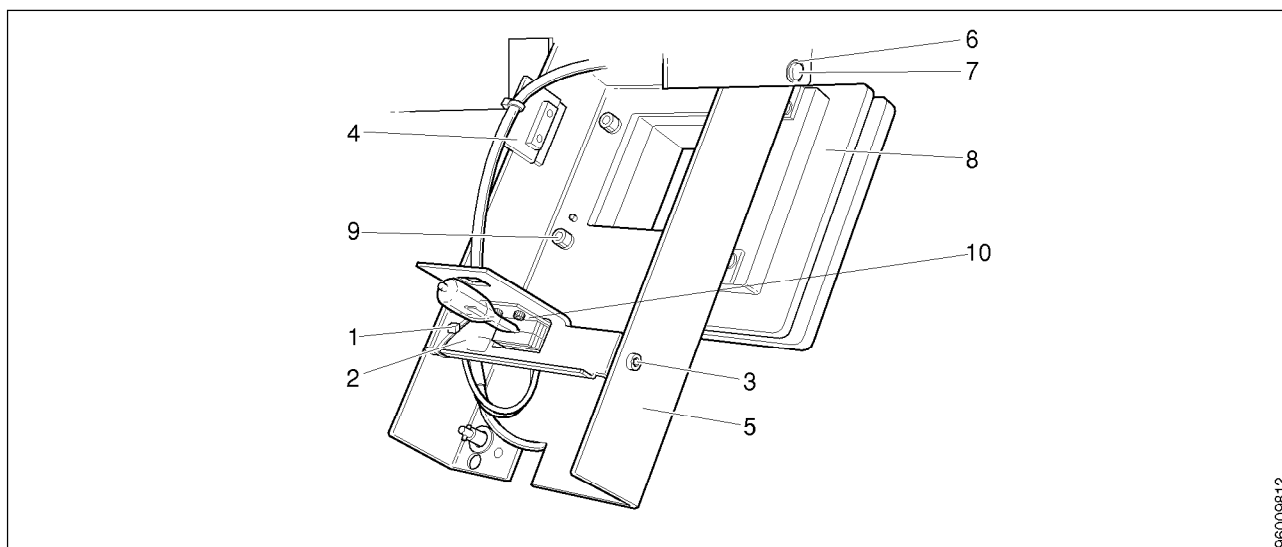


Fig. 6

Replacing the cable harness including the lamp holder and microswitch

- Remove the X-ray tube covers and lower the collimator as described in chapter 1.
- Cut off the cable ties (5/Fig.2, chap. 1).
- Disconnect plug X894 (4/Fig. 2, chap. 1).
- Remove the 2 screws (3/Fig. 6).
- Remove the lamp holder (2/Fig. 6).
- Remove the lamp socket by removing the screws.
- Remove the circlip (6/Fig. 6).
- Pull out the shaft (7/Fig. 6).
- Remove the collimator support (5/Fig. 6).
- Remove the 4 screws (9/Fig. 6).
- Remove the bracket (8/Fig. 6).
- Remove the switch by removing the screws.
- Take out the complete cable harness.
- Install the new cable harness.
- Reassemble the collimator support.
- Reinstall the collimator.
- Check the coincidence of light and radiation fields as described in chapter 3.
- Reinstall all covers.

Replacing the collimator assembly

Update: Larger radiation field

- General:
 - Many customers would like the entire film to be exposed.
 - There is an update kit available for the corresponding change required.
- Required parts:
 - Update kit 63 96 977 X041E
- Required documents:
 - Installation instructions "Larger radiation field" RX B7-120.031.07.01...

Replacing the collimator

- Required documents:
 - Service instructions Mammomat 300, RX B7-120.061.01...

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General

- The nominal width of the radiation field is
 - 248 mm for the 18 cm x 24 cm format
 - 308 mm for the 24 cm x 30 cm format
- The radiation field may not exceed the front edge (6) of the film I.D. field.
- The radiation field may not extend beyond the film edge on the side close to the chest wall by more than 9.5 mm.
- The light field and radiation field must be within the following tolerances:

- left edge:	+/- 6.5 mm	- back edge:	+/- 6.5 mm
- right edge:	+/- 6.5 mm	- front edge:	+/- 6.5 mm

Measurement procedure

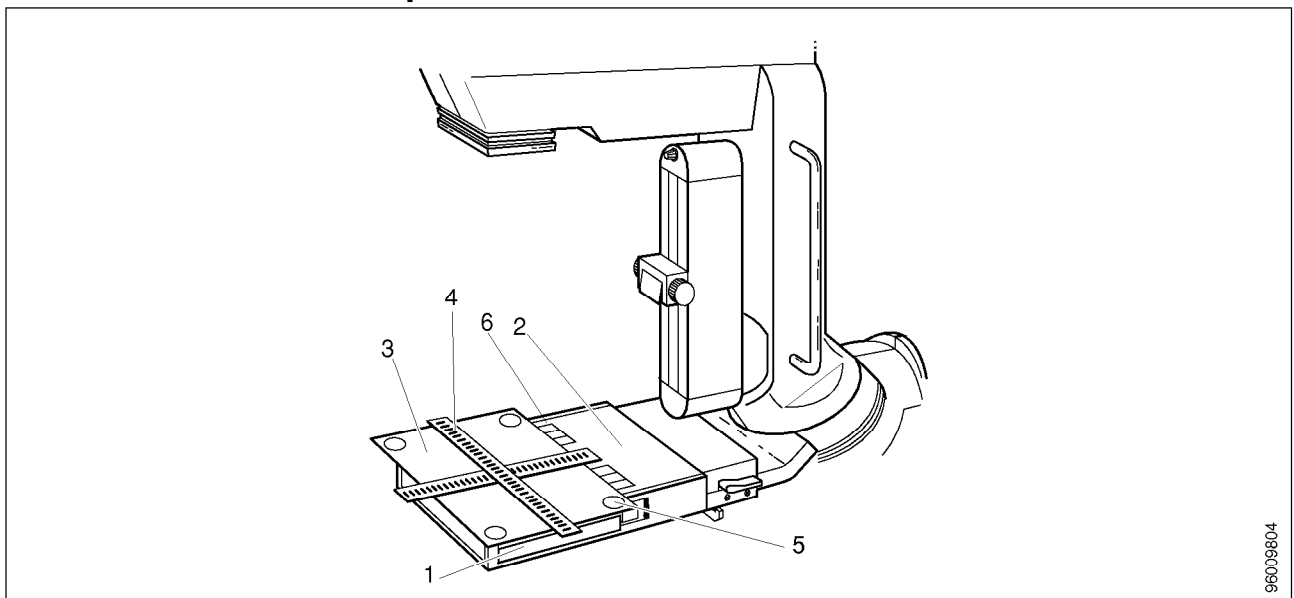


Fig. 1

- Insert a film in the cassette and center it (1/Fig. 1).
- Insert the cassette in the object table (2/Fig. 1).
- Place a film envelope (3/Fig. 1) on the object table.
The film envelope must extend a minimum of 10 mm beyond the edge of the chest wall.
If there is no film envelope available, two film cassettes may be placed next to each other on the object table.
- Place the centering cross (4/Fig. 1) on the film envelope or on the cassettes.
- Switch on the light localizer (5/Fig. 1) and mark the edges of the light field with four washers (or coins).
- Record the position of the centering cross (scale values) with respect to the edges of the object table, and the front edge of the film I.D. field.
- Release an exposure (Mo/Mo) and develop the film.

Evaluation

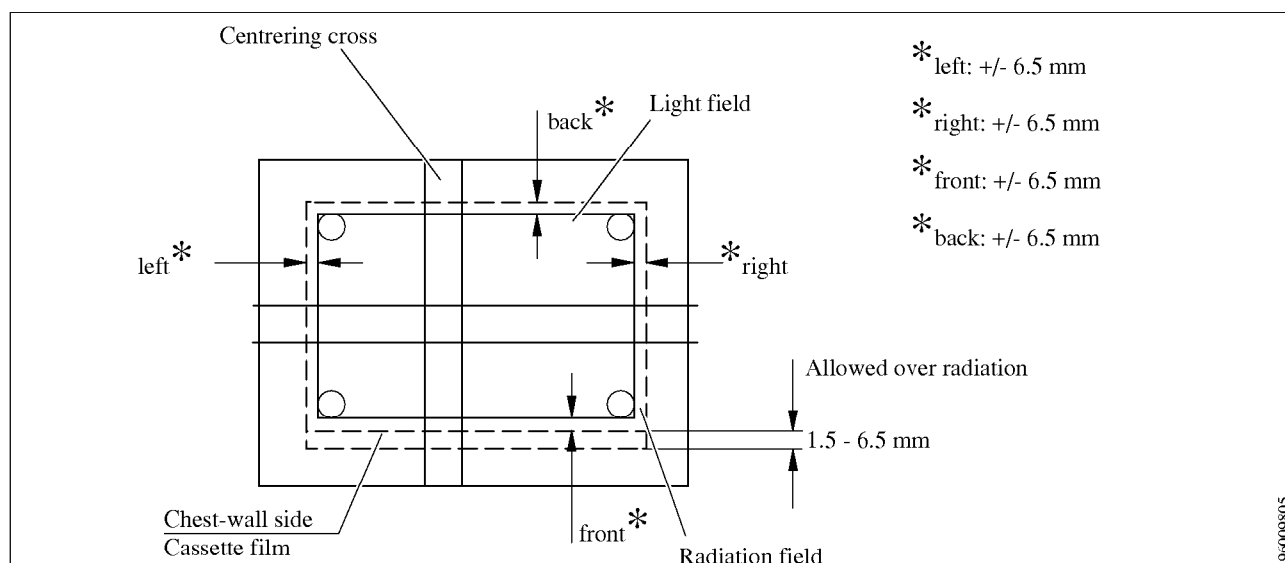


Fig. 2

Coincidence of light and radiation fields

- Evaluation of the film in the film envelope:
 - Draw the position of the light field by connecting the outer edges, of the coin markings as shown in Fig. 2.
 - Compare the outer edges of the light field with those of the radiation field. The maximum deviation may not exceed 6.5mm on any one side.

Radiation field limitation

- Compare the film from the cassette with the one from the film envelope using the scale on the centering cross:
 - The cassette film must be completely exposed on the side opposite the chest wall. The radiation field must not extend beyond the front edge of the film I.D. field.
 - The radiation field on the chest wall side must extend between a minimum of 1.5mm and a maximum of 9.5mm.
 - The radiation field may not extend beyond the side edges of the object table. The distance to the edges must be a minimum of 7 mm. To check this, compare the scale values of the film from the film envelope with the values recorded on page 3-1, in item 6.
- Refer to the next page for correction procedures.
- Repeat the test with all object tables.

NOTICE

Be sure to use the correct external collimator plate for the above tests. New external collimator plates are included in the installation kit. The collimator plate MAG 18 x 24 cm is used for magnification technique. The MAG SPOT M300 plate is for magnification and detailed spot compression. The 18 x 24 cm plate is for the 18 x 24 cm object table.

The tolerances indicated in the following apply to the new collimator design.
The radiation field may be slightly smaller for collimators with the older design.

Corrections

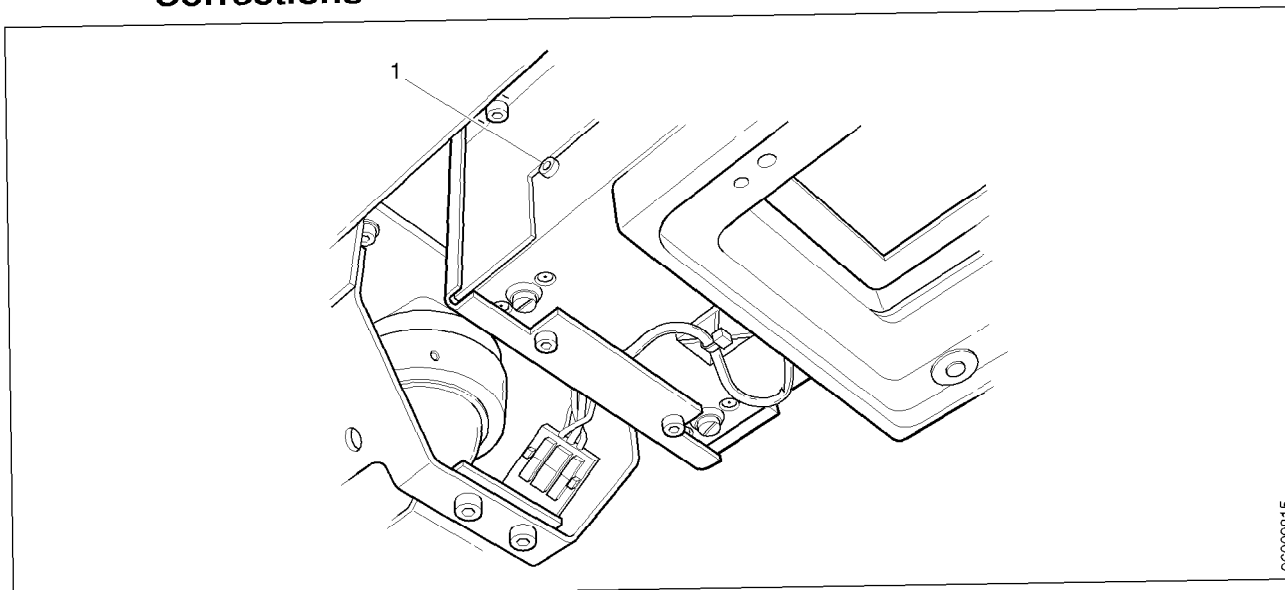


Fig. 3

- The light field may be adjusted by loosening the screws as shown in (1/ Fig. 3) or (10/ Fig. 3 in chapter 1) and by shifting the light source.

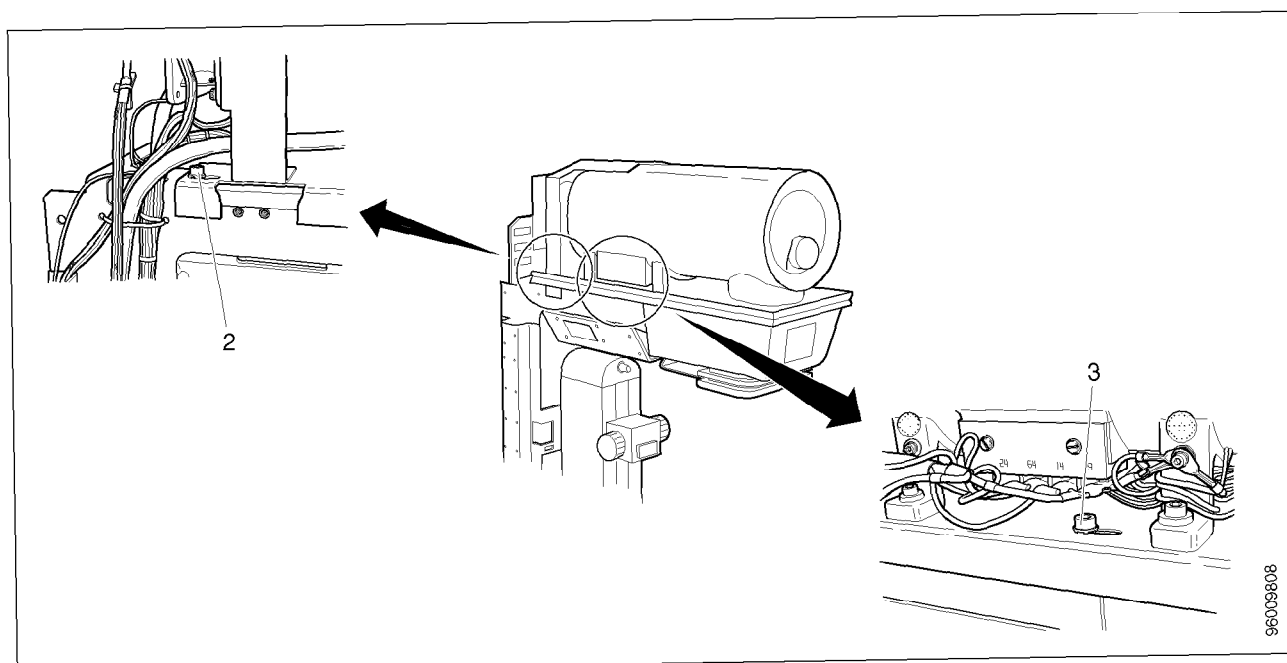


Fig. 4

- The radiation field may be adjusted as follows:
 - Loosen the mounting screws (2 and 3/ Fig. 4).
 - Adjust the radiation field in the chest wall / column stand wall direction (Y- direction) by shifting the collimator.
 - It is possible to make a small lateral adjustment in the radiation field; to do this push the collimator in the desired direction while tightening the screws.

3 - 4 Checking / correcting light and radiation fields

Final steps

- Reinstall the X-ray tube covers.

Chapter 0	Revision level updated, Table of Contents revised according to changes.
Chapter 2 Page 7	Section "Replacing the collimator" changed.
Chapter 4	new

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SMS Iselin / O'Donnell

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